ABSTRACT

A very high data rate telemetry system is provided for use in a wellbore. In a described embodiment, a telemetry system includes multiple nodes positioned in the wellbore and distributed over a substantial length of the wellbore. The nodes simultaneously communicate with a remote location at a very high combined data transmission rate. A method of communicating data in a wellbore is also provided. The method includes the steps of installing multiple modems in the wellbore, installing a remote modem at a location remote from the downhole modems, and simultaneously communicating data from each of the downhole modems to the remote location. Each downhole modem communicates with the remote modem using a unique set of frequency subchannels.